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**What is claimed is:****1. A transmitter apparatus comprising:**

5                   a microphone operable to produce electrical signals  
representing acoustic utterances;

                  a transmitter circuit in communication with said microphone and  
operable to transmit electromagnetic radiation representing said  
10               acoustic utterances for reception by a receiver;

                  a housing having first and second opposite end portions and a  
retention portion between said first and second opposite end  
portions, said retention portion being operable to cooperate with  
15               a receptacle on a breathing apparatus to facilitate installation  
and removal of said transmitter apparatus on said breathing  
apparatus

20               2. The transmitter apparatus of claim 1 wherein said retention portion is  
operable to frictionally engage with said receptacle on said breathing  
apparatus.

                  3. The transmitter apparatus of claim 1 further comprising a compensator  
for compensating for distortions made to said acoustic utterances.

25               4. The transmitter apparatus of claim 3 wherein said compensator filters  
said acoustic utterances made by a wearer.

30               5. The transmitter apparatus of claim 3 wherein said compensator  
comprises a compensator circuit for electrically compensating for said  
distortions.

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6. The apparatus of claim 1 wherein said microphone is on one of said first and second opposite end portions of said housing.
- 5 7. The apparatus of claim 1 further comprising power terminals for cooperating with a power source to permit said power source to provide energy for powering said transmitter apparatus.
- 10 8. The apparatus of claim 7 wherein said power terminals are inside said housing.
- 15 9. The apparatus of claim 7 further comprising a charging port for receiving energy supplied externally to said housing and for providing said energy to said power terminals.
- 20 10. The apparatus of claim 9 wherein said charging port comprises a charging socket on an end of said housing, opposite said end on which said microphone is located.
- 25 11. The apparatus of claim 1 wherein said retention portion is curved.
12. The apparatus of claim 1 wherein said retention portion is concave.
- 30 13. The apparatus of claim 1 wherein said retention portion has a leading edge and a trailing edge, said leading edge being thicker than said trailing edge.
14. The apparatus of claim 1 wherein said retention portion has a wedge-shaped cross section.
15. The apparatus of claim 1 wherein said housing is modular.

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16. The apparatus of claim 1, further comprising a breathing apparatus having a receptacle for receiving and holding said housing therein.
- 5 17. A system comprising the apparatus of claim 1 and further comprising a receiver operable to be supported by a wearer of the breathing apparatus and operable to audibly broadcast a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at said receiver.
- 10 18. The system of claim 17 wherein said receiver is operable to produce signals representing said acoustic utterances in response to said electromagnetic radiation and wherein said system further comprises a repeater operable to re-transmit said signals to a remote receiver.
- 15 19. A transmitter apparatus comprising:
- means for producing electrical signals representing acoustic utterances;
- 20 means, in communication with said means for producing, for transmitting electromagnetic radiation representing said acoustic utterances for reception by a receiver;
- 25 means for housing said means for producing and said means for transmitting; and
- 30 means for retaining said means for housing in a receptacle on a breathing apparatus to facilitate installation of said transmitter apparatus into said breathing apparatus and to facilitate removal of the transmitter apparatus from said breathing apparatus.

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**20.** A method of facilitating communications for a wearer of a breathing apparatus, the method comprising:

5                   transmitting from a transmitter on the breathing apparatus electromagnetic radiation representing acoustic utterances made by the wearer of the breathing apparatus for reception by a receiver supported by the wearer; and

10                   audibly broadcasting a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at said receiver.

15                   **21.** The method of claim **20** wherein transmitting comprises transmitting from said transmitter mounted on said breathing apparatus.

**22.** The method of claim **20** wherein transmitting comprises transmitting from a removable transmitter mounted in said breathing apparatus.

20                   **23.** The method of claim **20** further comprising producing signals in response to said electromagnetic radiation and transmitting said signals to a repeater for re-transmission to a remote receiver.

25                   **24.** The method of claim **20** further comprising producing electrical signals in response to said electromagnetic radiation, said electrical signals representing said acoustic utterances, and filtering said signals to correct for distortions.

30                   **25.** An apparatus for facilitating communications for a wearer of a breathing apparatus, the apparatus comprising:

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means on the breathing apparatus for transmitting electromagnetic radiation representing acoustic utterances made by the wearer of the breathing apparatus for reception by a receiver supported by the wearer; and

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means for audibly broadcasting a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at said receiver.

- 10      26. A method of facilitating communications between wearers of a breathing apparatus and a listener within a range of at least one of the wearers of the breathing apparatus, the method comprising:

15                    transmitting from a transmitter on the breathing apparatus electromagnetic radiation representing acoustic utterances made by at least one wearer of a breathing apparatus, for reception by a plurality of receivers supported by respective wearers within a range; and

20                    audibly broadcasting a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at at least one of said receivers.

- 25      27. A system facilitating communications between wearers of a breathing apparatus and a listener within a range of at least one of the wearers of the breathing apparatus, the system comprising:

30                    means for transmitting from a transmitter on the breathing apparatus electromagnetic radiation representing acoustic utterances made by at least one of the wearers of the breathing

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apparatus, for reception by a plurality of receivers supported by respective wearers within the range; and

5 means for audibly broadcasting a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at at least one of said receivers.

28. A system facilitating communications between wearers of a breathing apparatus and a listener within a range of at least one of the wearers of  
10 the breathing apparatus, the system comprising:

a plurality of transmitters held in respective receptacles in respective breathing apparatuses for transmitting electromagnetic radiation representing acoustic utterances  
15 made by at least one of the wearers;

a plurality of receivers supported by respective wearers, for receiving said electromagnetic radiation representing said acoustic utterances from at least one of said transmitters; and  
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a plurality of speakers supported by said respective wearers, said speakers being controlled by respective said receivers to audibly broadcast a reproduction of said acoustic utterances represented by said electromagnetic radiation transmitted by at  
25 least one of said transmitters.

29. A method of communicating the occurrence of an event indicated by a pre-defined audio signal, the method comprising:

30 detecting a first pre-defined audio signal; and

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transmitting a pre-defined radio frequency signal in response to detection of said first pre-defined audio signal.

- 5           **30.**   The method of claim 29 further comprising wearing a detector capable of detecting said first pre-defined audio signal and wearing a transmitter capable of transmitting said pre-defined radio frequency signal.
- 10           **31.**   The method of claim 29 wherein transmitting comprises transmitting a message indicative of the occurrence of said event.
- 32.**   The method of claim 29 wherein transmitting comprises transmitting a homing signal.
- 15           **33.**   The method of claim 31 further comprising transmitting a homing signal.
- 34.**   The method of claim 29 further comprising detecting said event and producing said first pre-defined audio signal in response to detection of said event.
- 20           **35.**   The method of claim 34 further comprising wearing a detector operable to detect said event.
- 25           **36.**   The method of claim 29 further comprising producing a second pre-defined audio signal in response to receiving said first pre-defined radio frequency signal.
- 30           **37.**   The method of claim 36 wherein producing said second pre-defined audio signal comprises producing a synthesized voice message.

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- 38.** An apparatus for communicating the occurrence of an event indicated by a pre-defined audio signal, the apparatus comprising:

means for detecting a first pre-defined audio signal; and

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means for transmitting a pre-defined radio frequency signal in response to detection of said first pre-defined audio signal.

- 39.** The apparatus of claim **38** further comprising means to facilitate wearing said means for detecting said first pre-defined audio signal and said means for transmitting.

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- 40.** The apparatus of claim **38** wherein said means for transmitting is operable to transmit a message indicative of said event.

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- 41.** The apparatus of claim **38** wherein said means for transmitting is operable to transmit a homing signal.

- 42.** The apparatus of claim **40** wherein said means for transmitting is operable to transmit a homing signal.

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- 43.** A system comprising the apparatus of claim **38** and further comprising means for detecting said event and means for producing said first pre-defined audio signal in response to detection of said event.

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- 44.** The system of claim **43** further comprising means to facilitate wearing of said means for detecting said event.

- 45.** A system comprising the apparatus of claim **38** and further comprising means for producing a second pre-defined audio signal in response to receiving said first pre-defined radio frequency signal.

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46. The system of claim 45 wherein said means for producing said second pre-defined audio signal comprises means for producing a synthesized voice message.
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47. An apparatus for communicating the occurrence of an event indicated by a pre-defined audio signal, the apparatus comprising:
- 10                   a detector operable to detect a first pre-defined audio signal;  
                    and
- a transmitter operable to transmit a pre-defined radio frequency signal in response to detection of said first pre-defined audio signal.
- 15
48. The apparatus of claim 47 further comprising a strap connected to said detector and said transmitter to facilitate wearing said detector and said transmitter on a person.
- 20
49. The apparatus of claim 47 wherein said transmitter is operable to transmit a message indicative of said event.
50. The apparatus of claim 47 wherein said transmitter is operable to transmit a homing signal.
- 25
51. The apparatus of claim 49 wherein said transmitter is operable to transmit a homing signal.
52. A system comprising the apparatus of claim 47 and further comprising an event detector and an audio signal generator in communication with
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said event detector for generating said first pre-defined audio signal in response to detection of said event.

5       **53.**   The system of claim **52** further comprising a strap connected to said event detector and said audio signal generator to facilitate wearing said event detector and said audio signal generator on a person.

10       **54.**   A system comprising the apparatus of claim **47** and further comprising a second audio signal generator for generating a second audio signal in response to receipt of said first pre-defined radio signal.

15       **55.**   The system of claim **54** wherein said second audio signal generator comprises a voice synthesizer for producing a voice synthesized message.

**56.**   A method of facilitating communications for a wearer of a mask, the method comprising:

20           receiving a removable transmitter apparatus in a receptacle in the mask, to permit said transmitter apparatus to receive utterances made by the wearer of the mask and to transmit electromagnetic radiation representing said utterances for reception by a receiver; and

25           frictionally engaging said removable transmitter apparatus in said receptacle to hold said removable transmitter apparatus therein.

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57. The method of claim 56 wherein receiving said transmitter apparatus comprises receiving said transmitter apparatus in said receptacle on a user-facing side of said mask.
- 5 58. The method of claim 56 wherein receiving comprises receiving said transmitter apparatus between a breathing valve and a chin seal defining said receptacle in said mask.
- 10 59. The method of claim 58 wherein receiving further comprises receiving a portion of said chin seal between opposite end portions of said transmitter apparatus.
- 15 60. The method of claim 59 wherein receiving further comprises receiving a portion of said chin seal in a concave portion of said transmitter apparatus.
- 20 61. The method of claim 59 wherein receiving further comprises receiving a portion of said chin seal adjacent a curved portion of said transmitter.